SARC#34: CHAIRMAN'S REPORT

by
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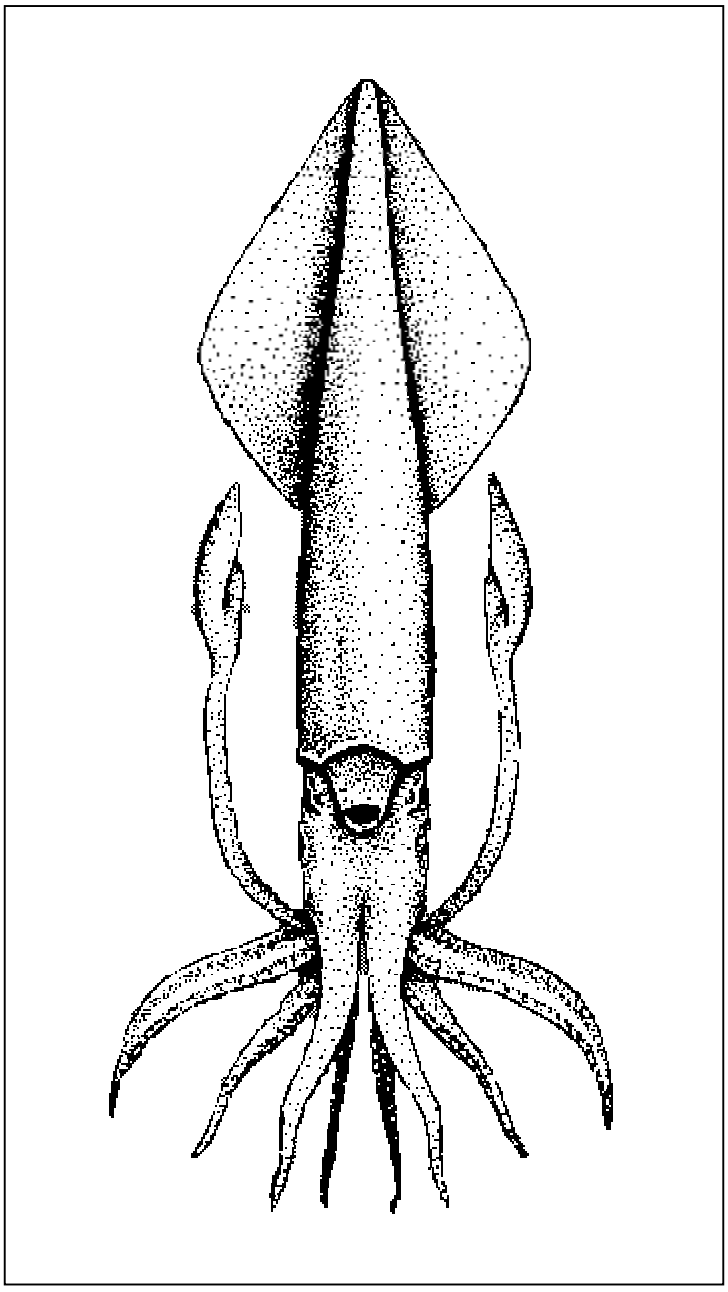

CONTENTS

1 Recommendations

(a) *Assessment teams should be encouraged to work more co-operatively. Sub-committee chairs should be open to a range of approaches and seek to include alternative methods.*

(b) *Assessment reports should more explicitly address issues of interpretation of reference points and stock status. They should produce a draft advisory report for the SARC before the SARC meeting.*

(c) *New methodologies should be more thoroughly reviewed by appropriate experts before they are used by assessment teams for live assessments. Reviewing such work should not be the job of the SARC.*

(d) *Organizational structures should be developed which allow a more constructive engagement between the assessment teams and the SARC panel. This might be done by having a more formal representation of sub-committee chairs or assessment leaders in the meeting.*

(e) *Presentations at the SARC should be simplified and shortened to allow more time for discussion of issues critical to the advisory report and consensus summary.*

2 Background

The Stock Assessment Review Committee (SARC) is a part of the Stock Assessment Workshop (SAW) process operated in the Northeast United States to provide the New England Fishery Management Council (NEFMC) and the Mid-Atlantic Management Council (MAFMC). The primary function of the SARC is to review stock assessments prepared by assessment teams, prepare consensus summaries of the assessments and to draft advisory summary reports. The SARC consists of a panel comprising scientific experts from NMFS, representatives from management councils, scientists from academia and experts provided by the University of Miami Center for Independent Experts (CIE). In the case of SARC#34 the panel consisted of three NMFS experts, two scientists from academia, two representatives from management councils and one expert from an independent scientific marine institute. CIE provided an expert and the chair. In addition to the panel, the meeting is open to members of the public, which include fishing industry representatives and experts employed by them. On this occasion an industry consultant on goosefish was present.

SARC#34 was tasked to consider Georges Bank winter flounder, goosefish and the squid *Loligo pealeii.* All three stocks were discussed and advisory reports were prepared.

3 Description of Review Activities

3.1 Documentation

A package of assessment documents was received one week prior to the meeting. This package consisted of a main assessment document for each stock plus various supporting papers. These are listed in the bibliography. The papers were reviewed by the consultant prior to meeting. In general the documents were complete, though the main squid assessment paper lacked a final analysis. Such an analysis was presented during the course of the meeting.

3.2 Preparation and Conduct of the meeting

The consultant arrived in Falmouth MA on 24th November and arranged to meet the SAW chair on the 25th to discuss the conduct of the meeting. An outline agenda was prepared, and SARC leaders were identified for each stock. On the morning of the 26th November, the consultant discussed the presentation of the assessments with the report authors. The consultant then chaired the meeting from 13:00hrs on the 26th November until 15:00hrs on the 30th November. During this period all the documents sent out in the original package were presented and reviewed by the panel. Where necessary, additional assessment runs were requested by the panel. These were then presented during the course of the meeting. On the last two days of the meeting, advisory summary documents were prepared, reviewed and agreed. In addition, SARC comments and research recommendations were prepared by rapporteurs, discussed and agreed upon by the panel.

3.3 Activity following the meeting

Following the meeting, draft texts of the advisory reports and SARC comments were circulated among panellists. The consultant acting as SARC chair oversaw the editing of these comments, and where necessary, made decisions about the final text.

4 Summary of findings

4.1 Winter Flounder

This was the most straightforward of the stocks considered. In the past, the principal assessment has been based on ADAPT. However, recent port sampling has been very limited and the age composition data are not regarded as reliable. The assessment teams had updated the ADAPT VPA but had indicated that the assessment should be rejected. A surplus production model using ASPIC had been run and this was regarded as more reliable. It was noteworthy, however, that the VPA and ASPIC runs gave very similar biomass trajectories, and the SARC felt that both methods had value in judging the stock status. A further analysis had been performed using an age-structured separable fishing mortality model (referred to as WIN). This model gave biomass estimates that were double the values obtained from the other methods and, as a result, the panel did not have sufficient confidence in them for stock status determination.

4.2 Goosefish

Two issues dominated the goosefish assessments. First, a co-operative survey had been conducted with the fishing industry and there was considerable public pressure to make use of this information. Second, the assessments have traditionally covered two separate areas, North and South, but there is pressure from the fishing industry to manage the stock as a single unit.

The co-operative survey had proved very effective in providing biological data on parameters such as growth and maturity. It had also provided a swept area estimate of biomass. However, the information from the survey did not conflict with NMFS survey data and, as a result, there was no significant disagreement over the status of the stock. Generally, there is some indication of an improvement in both biomass and fishing mortality rates although, technically, the stocks are still over-fished and subject to overfishing.

Genetic studies had not found any differences between the Northern and Southern areas. Furthermore, growth and maturity data from the co-operative survey did not show any major differences either. This indicates that the separation of the population into two management units may not be justified. However, the fisheries in the two areas are different, and there may still be a case for separate management. The SARC did not feel that there was convincing evidence for either management scenario, and the crucial question is which management regime would result in the most effective management of the population(s). This is to a large degree an issue for managers, at least while the scientific case is neutral.

4.3 Squid

A substantial amount of work had been done on the squid assessment. The main document reported updated assessments using length based VPA (LVPA), minimum biomass estimates based on modeling survey catchability, and a surplus production model (PDQ) which attempted to model process error and measurement error in the survey indices. A supplementary paper reported an analysis of survey data using general additive models (GAM) where covariates such as depth, time of day, and latitude and longitude were used to reduce the variance of the indices.

The general picture that emerges from the analyses is that the survey data, which are the principal information source for any assessment, are significantly affected by process noise that is not due to a true signal in abundance. The PDQ model interpreted this noise as a process error in survey catchabilities, while the GAM model attributed it to the covariates listed above. Both analyses, therefore, tended to reduce the true biomass index to a relatively stable value that shows little long-term trend over 2-3 decades. This is an important change from the last assessment, which over-interpreted the fluctuations in the survey index. The local (local at what scale?) decline in the time series at the time of the last assessment was seen as a decline in the stock. The new assessment suggests that the stock has been relatively stable.

A fundamental difficulty with the assessment is that the surplus production models generally applied to the survey index cannot reproduce the rapid changes in biomass implied by the index. In order to resolve this problem, the models tend to give estimates of biomass that are infeasible (i.e. too small). The assessment team had addressed this issue in an elegant analysis to estimate survey catchability empirically. This empirical estimate had been used to constrain the PDQ model. Unfortunately, the consequence of this constraint requires a relaxation of the normal restriction on the population growth rate at large biomass and a need to explicitly estimate annual values of survey catchability. The result is a model which smoothes the data but has almost no predictive power because survey catchability cannot be forecasted and because population growth rate is unrestricted and exponential. These problems will also lead to biomass estimates and exploitation rates in the most recent years that are not reliable. This latter problem was clearly demonstrated by retrospective runs requested by the SARC.

4.4 Assessment Process

There are a number of general points to make about the assessments presented at the SARC that are related to the process rather than the technical details. Overall, the assessments are comprehensive, thorough, and produced to a high standard. The early dissemination of the documents is also of great assistance in preparing for the review meeting. The reports, however, display the usual failing of scientists, which is to continue analysis until the deadline for submission and then produce a report in haste. The result is that the material is quite difficult to follow because the presentation has not been well thought out. The reports also tend to stop at the presentation of results with minimal attempts at synthesis in terms of judging stock status. This leaves a lot of work up to the SARC which is not really very satisfactory since it is the assessment teams who are the real experts on the stocks and the fisheries.

A significant amount of material presented at the SARC would be more realistically considered new research. This related to certain parts of the co-operative goosefish survey analysis, the PDQ and GAM models. These analyses should really be reviewed more thoroughly by appropriate experts before the SARC commences, especially if the results are to be used as the basis for advice. The time available to the SARC and the range of expertise around the table at the meeting is not adequate to review these properly. In my view, the use of the PDQ model in the advice was unwise because the behavior of the model had not been fully explored, the software had not been thoroughly tested, and the reliability of the results could not be established. It is this sort of issue that needs to be tested by a methods working group before it is used in a live assessment.

The assessments for each stock needed to be better integrated. This was most apparent in the case of squid where the work on GAMs had been done completely independently of the assessments reported in the main assessment document. Given that all the analyses were being performed in the same institute, there is no reason why this work could not be better co-coordinated and integrated. It is not helpful to the work of the SARC to have divided teams presenting rival work. Both approaches had value, and a more co-operative work ethic would possibly have been even more productive.

4.5 SARC Process

I sensed that the assessment sub-committees did not have an entirely positive attitude to the SARC. This manifested itself in assessment reports that left a lot of scientific judgments to be made by the SARC. It was also made clear with rather unhelpful interventions being made from the floor that more often stated problems than offered solutions Of course, it is the job of the SARC to resolve difficult scientific issues, but it would be helpful to be offered a point of departure by the sub-committee and to be offered possible ways forward. One got the impression that the assessment teams had a strong sense of ownership of the assessments, and that they felt the SARC was simply being critical. This is classic behavior of groups that feel excluded from a process. Perhaps this problem could be overcome through more formal recognition and participation of the assessment teams in the SARC. There may be a case for having the sub-committee chairs on the SARC panel.

I have commented before in reports on STAR panels and the SARC#32 that the amount of time devoted to each stock is excessive. One day per stock is sufficient in my view so long as assessment reports are produced in time and are complete. Given that the documentation is circulated before the meeting, there should be no need to have highly detailed presentations lasting several hours. It is more important for the panel to have the main points and issues arising from the assessments presented and then have a longer and more active discussion. At this SARC, some presentations lasted more than five hours despite my best efforts to move things along. After such a lengthy period, most panelists were too tired for any useful discussion. This is not healthy. I would suggest that no presentation should last more than one hour, and that presentations on any stock should occupy no more than half a day. This would allow more time for consideration of stock status, interpretation of reference points, and form of advice.

5 Conclusions and recommendations

The SARC process works well, and the public nature of the meeting is a considerable strength. Like any institution, it can be improved and, based on the discussion above, I would make the following suggestions:

(a) **Assessment teams should be encouraged to work more co-operatively. Sub-committee chairs should be open to a range of approaches and seek to include alternative methods.** This would avoid the presentation of apparently disparate assessments as occurred with *Loligo*. Undertaking a range of approaches is healthy but can be enhanced by a coordinated effort.

(b) **Assessment reports should more explicitly address issues of interpretation of reference points and stock status. They should produce a draft advisory report for the SARC.** At present, reports focus heavily on estimating stock trends and, as a result, the more difficult issue of the status of stock in relation to reference points is given too little attention. Asking subcommittees to produce a draft advisory report before the meeting might help focus attention on this problem and facilitate the work of the SARC meeting.

(c) **New or non-standard methodologies should be more thoroughly reviewed by appropriate experts before they are used by assessment teams for live assessments. Reviewing such work should not be the job of the SARC**. Too much material, notably in the case of squid, was novel and had not been tested or verified before the SARC. The SARC meeting itself cannot be expected to give this material the depth of review required to ensure quality is being maintained. It needs to be done by a separate group of experts.

(d) **Organizational structures should be developed which allow a more constructive engagement between the assessment teams and the SARC panel. Having a more formal representation of sub-committee chairs or assessment leaders in the meeting might do this**. A recognized role of the assessment leaders would benefit the SARC by including more expertise on the specific stocks and help the assessment teams understand the issues facing the SARC.

(e) **Presentations at the SARC should be simplified and shortened to allow more time for discussion of issues critical to the advisory report and consensus summary.**

6 Bibliography

A-1. Stock Assessment and Reference Points For Inshore Longfin Squid, *Loligo pealeii*. Invertebrate Subcommittee

A-2. Yield-Maximizing Fishing Mortality for Short-Lived Squids with Monthly Cohort Dynamics: A Case Study of *Loligo pealeii.* H. Lai and J. Brodziak

A-3. Summary of Commercial Landings and Survey Abundance Indices. H. Lai and C. Keith

A-4. Generalized Additive Modeling Approach for Estimating Survey Abundance Indices of Loligo Squid. H. Lai and P. Rago

B-1. Assessment of the Georges Bank Winter FJounder Stock, 1982 –2000. Southern Demersal Working Group

B-2. An Age-Structured Assessment Model For Georges Bank Winter Flounder. J. Brodziak

C-1. Assessment of Goosefish Stocks Off the Northeast United States. Southern Demersal Working Group

C-2. Some Surplus Production Analyses For Northern, Southern, and Combined-Area Monkfish. J. Brodziak

7 STATEMENT OF TASK

Consulting Agreement between the University of Miami and Robin Cook

November 2, 2001

7.1 General

The Stock Assessment Review Committee meeting (SARC) is a formal, one-week long meeting of a group of stock assessment experts who serve as a peer-review panel for several tabled stock assessments. It is part of the overall Northeast Stock Assessment Workshop (SAW) process which also includes peer assessment development (SAW Working Groups), public presentations, and document publication within a cycle that lasts six months. The panel is made up of some 12-15 assessment scientists: 4 scientists from the NEFSC; a scientist from the Northeast Regional office, scientists from the staff of the New England and Mid-Atlantic Fishery Management Councils, and Atlantic States Marine Fisheries Commission and additional panelists from state fisheries agencies, academia (US and Canada), and other federal research institutions (US and Canada).

Designee will serve as chairman of the 34th Stock Assessment Review Committee panel. The panel will convene at the Northeast Fisheries Science Center in Woods Hole the week of 26 November (26-30 November, 2001) and review assessments for goosefish (monkfish), Georges Bank winter flounder and loligo squid (long-finned inshore squid, *Loligo pealeii*).

7.2 Specific

(1) Prior to the meeting: become familiar with the working papers produced by the SAW Working Groups (total number not final; there will be at least one per stock);

(2) During the meeting: Act as chairperson where duties include control of the meeting, coordination of presentations and discussion, control of document flow;

(3) After the meeting: Facilitate the preparation and writing of a Draft Advisory Report and Consensus Summary Report by NMFS personnel. Panelists, NEFSC staff and the SAW Chairman will ensure that documents are made available to the SARC chair, revised according to the SARC Chair's directions, compiled, copied and distributed;

(4) Review the final Draft Advisory Report and Consensus Summary Report.

(5) No later than January 7, 2002, submit a chair report detailing the major events, results, and conclusions of the meeting. The report should be addressed to the

"UM Independent System for Peer Reviews, " and sent to David Die, UM/RSMAS, 4600 Rickenbacker Causeway, Miami, FL 33149 (or via email to ddie@rsmas.miami.edu).

The SAW Chairman and SAW Coordinator will assist the Chair prior to, during and after the meeting in ensuring that documents are distributed in a timely fashion. The SARC Chair will be solely responsible for the editorial content of the reports.

The Chair's duties will occupy a total of two weeks - several days prior to the meeting for document review; the week long meeting; and several days following the meeting to ensure that the final documents are consistent with the SARC's recommendations and advice.